DSR®1024 Switch
Installer/User Guide

USA Notification

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment is a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

Japanese Approvals

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Safety and EMC Standards

UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST

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CHAPTER 1

Product Overview

Features and Benefits

Avocent DSR® switches combine analog and digital technology to provide flexible, centralized control of data center servers and facilitate the OA&M (operations, activation and maintenance) of remote branch offices where trained operators may be unavailable. They provide enterprise customers with a significant reduction of cable volume, secure remote access and flexible server management from anywhere at anytime.

The DSR1024 switch is a keyboard, video and mouse (KVM) switch, configurable for analog (local) or digital (remote) connectivity. Video resolutions are supported up to 1280 x 1024 for remote users. Enhanced video quality of up to 1600 x 1200 is available to local users via the video port.

The DSR switch has user peripheral ports for PS/2 keyboards and mice and an SPC port that may be used to connect to an SPC power control device. An SPC device is an 8- or 16-outlet device that can be used to control the power state of any attached target devices using the DS software.

Users can access target devices across a 100BaseT LAN port that is used to establish an Ethernet connection, or directly through a local port. Each DSR switch model includes a MODEM port that supports V.34, V.90 or V.92-compatible modems that may be used to access the switch when an Ethernet connection is not available.

The IP-based DSR switches give you flexible target device management control from anywhere in the world.

Reduce cable bulk

With server densities continually increasing, cable bulk remains a major concern for network administrators. The DSR1024 switch reduce KVM cable volume by utilizing the innovative DSRIQ module and a single, industry-standard Unshielded Twisted Pair (UTP) CAT 5 cable.

The DSRIQ module is powered directly from the target device and provides Keep Alive functionality when the DSR1024 switch is not powered.

The DSRIQ-SRL (serial) module is a DCE device that provides the primary interface between a serial device and a DSR1024 switch. It provides VT100 terminal emulation, break suppression and port history in a compact, convenient module.

Access the DSR1024 switch via network connection

No special software or drivers are required on the attached, or client, computers.

NOTE: The client connects to the server housing the DSView® management software using an Internet browser. For modem access, you must install DSR Remote Operations software included on the DSView software CD-ROM (see the DSView Installer/User Guide for more information).

Users access the DSR1024 switch and all attached systems via Ethernet or using a V.34, V.90 or V.92 modem from a client computer, such as a PC. Clients can be located anywhere a valid network connection exists.

Simple access to any target device

When a user accesses the DSView Server software, a listing of all target devices to which the user has permission to view and manage is displayed. When a user selects a target device from the list, the video of the selected target device is displayed in a Video Viewer window.

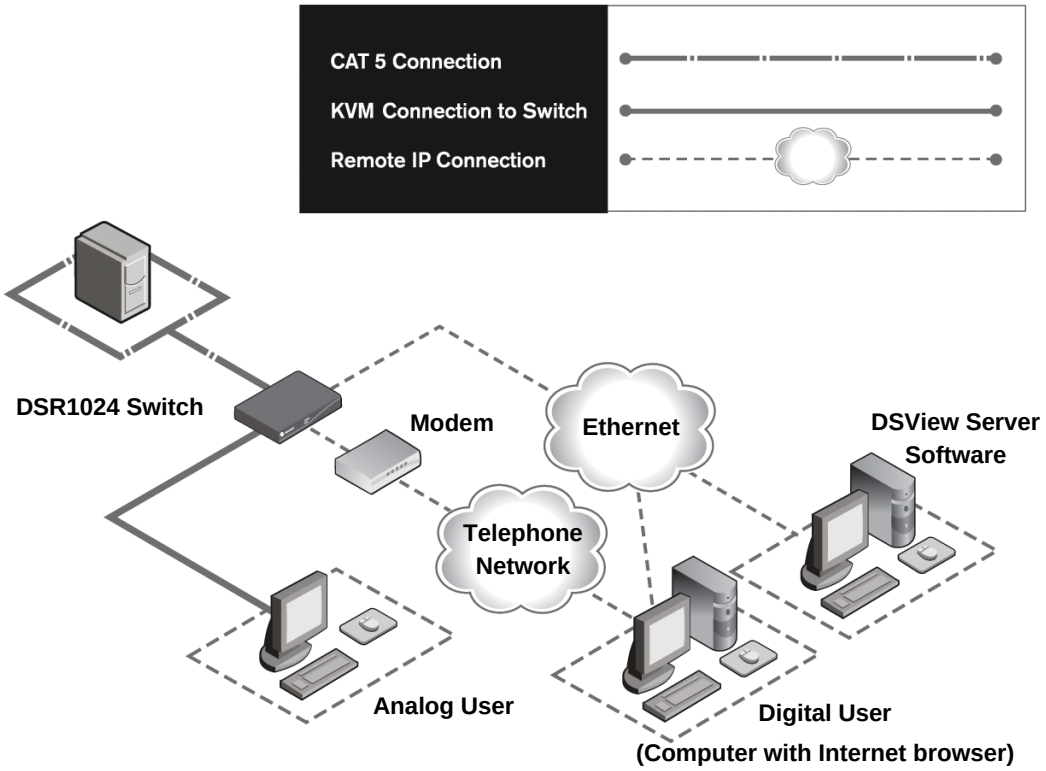

Figure 1.1: Example DSR1024 Switch Configuration

Safety Precautions

To avoid potential video and/or keyboard problems when using Avocent products:

- If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

- Do not use a 2-wire power cord in any Avocent product configuration.
- Test AC outlets at the target device and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the target device and monitor. When using a backup Uninterruptible Power Supply (UPS), power the target device, the monitor and the DSR switch from the UPS.

NOTE: The AC inlet is the main power disconnect.

- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings for maximum current.
- Reliable earthing of equipment should be maintained. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips). Reliable earthing of equipment should be maintained. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

CHAPTER 2

Installation

The DSR switching system requires connectivity to a server running the DSView Server software. DSView software allows a user to view and control target devices (one at a time) attached to the DSR switching system. For more information on the DSView software, see the DSView Installer/User Guide.

The DSR switching system transmits keyboard, video and mouse (KVM) information between operators and target devices attached to the DSR switch over a network using either an Ethernet connection or a modem connection.

The DSR1024 switch uses TCP/IP for communication over Ethernet. Although 10BaseT Ethernet may be used, Avocent recommends a dedicated, switched 100BaseT network.

The DSR1024 switch uses the Point-to-Point Protocol (PPP) for communication over a V.34, V.90 or V.92 modem.

Installation Overview

The general procedure for setting up and installing the DSR switch is as follows:

- Unpack the DSR switch and verify that all components are present and in good condition. See the *Getting Started* section in this chapter.
- Make all hardware connections between the power source, DSR switch, target device, optional SPC device, the Ethernet and the optional modem connection. See the *Connecting the DSR Switch Hardware* section.
- Turn on the power and verify that all connections are working. See the *Verifying the Connections* section.
- If you are configuring the DSR switch using the console menu interface, do that at this point. See Chapter 3 for more information.
- Use the DSView Server software to configure the DSR switch. See the DSView Installer/User Guide for detailed instructions.
- Make the appropriate mouse setting adjustments. See the *Adjusting mouse settings on target devices* section.

The following diagram illustrates one possible configuration for your DSR1024 switch.

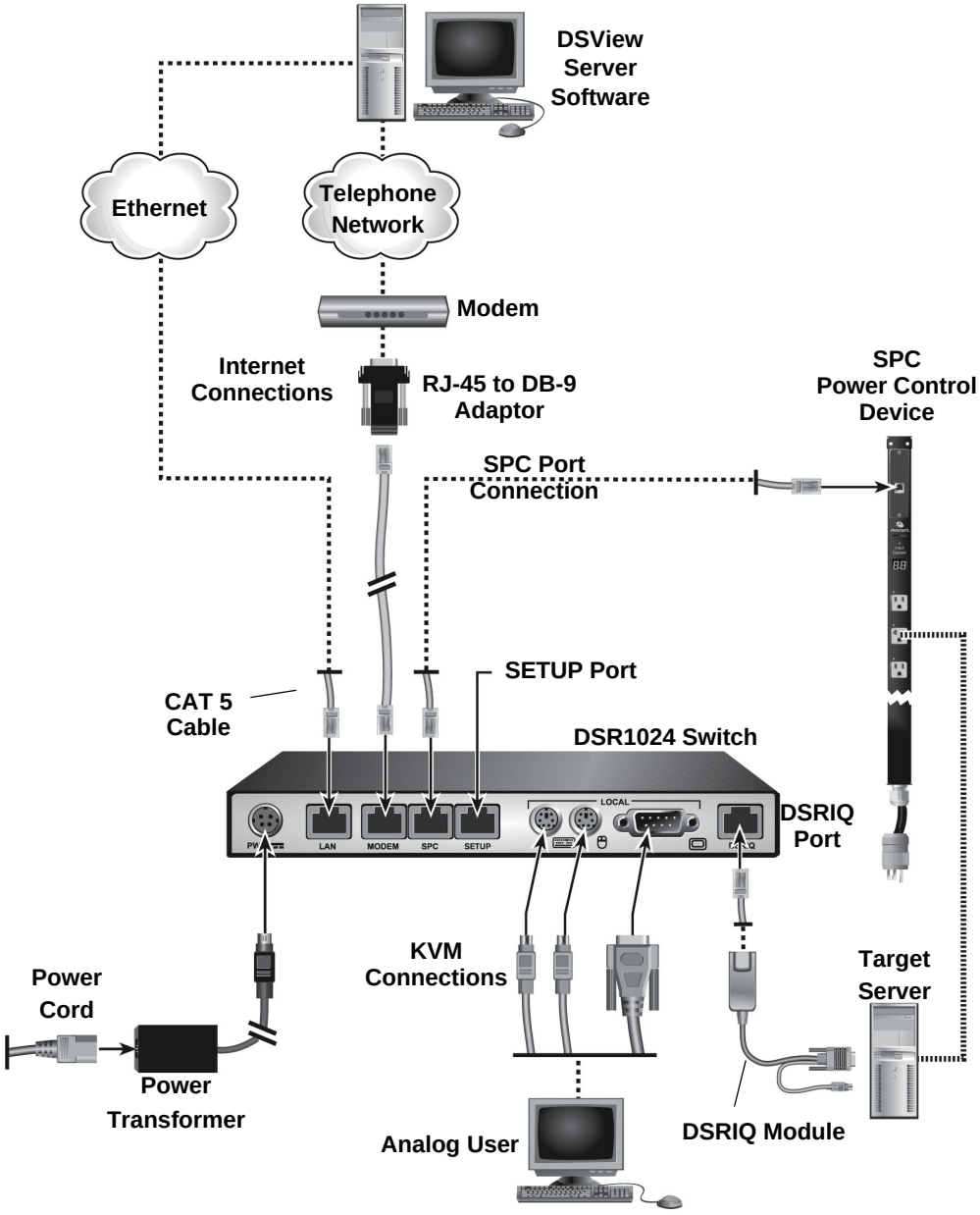

Figure 2.1: Basic DSR1024 Switch Configuration

Setting up your network

The DSR switching system uses IP addresses to uniquely identify the switch and the target devices. The DSR1024 switch supports both Dynamic Host Configuration Protocol (DHCP) and static IP addressing. Avocent recommends that IP addresses be reserved for each switch and that they remain static while the DSR switches are connected to the network. For additional information on setting up the DSR switch using the DSView Server software, and for information on how the DSR switch uses TCP/IP, see the DSView Installer/User Guide.

Getting Started

Before installing your DSR1024 switch, refer to the following lists to ensure you have all items that shipped with the DSR1024 switch, as well as other items necessary for proper installation.

Supplied with the DSR1024 switch

- Power transformer
- Local country power cord
- Two ribbon cables with RJ-45 connectors at each end
- One RJ-45 to DB-9 (male) adaptor for the modem connection
- One RJ-45 to DB-9 (female) adaptor for the SETUP port
- One CAT 5 patch cable for connecting the DSRIQ
- One DSRIQ module (either PS/2 or USB, depending on configuration purchased)
- DSR1024 Installer/User Guide (this manual)
- DSR1024 Quick Installation Guide

Additional items needed

- (Optional) DSRIQ-VSN, DSRIQ-WSN, DSRIQ-USBS or DSRIQ-SRL supporting serial connections
- One CAT 5 patch cable for network connectivity (4-pair UTP, up to 10 meters)
- DSView software
- (Optional) V.34, V.90 or V.92-compatible modem and cables
- (Optional) SPC power control device

Connecting the DSR Switch Hardware

To connect and power up your DSR1024 switch:

1. Power down the target device(s) that will be part of your DSR switching system. Locate the power cord that came with the DSR1024 switch. Plug one end into the power socket on the rear of the DSR1024 switch. Plug the other end into an appropriate AC wall outlet.

WARNING: To reduce the risk of electric shock or damage to your equipment:
- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) outlet that is easily accessible at all times.
- Disconnect the power from the switch by unplugging the power cord from either the electrical outlet or the appliance.

2. Plug your VGA monitor and PS/2 keyboard and mouse cables into appropriately labeled DSR1024 switch ports. You must install both a keyboard and mouse on the local port or the keyboard will not initialize properly.
3. Plug one end of a CAT 5 patch cable (4-pair, up to 10 meters) into the DSRIQ port and plug the other end into the RJ-45 connector of a DSRIQ module.
4. Plug the DSRIQ module into the appropriate ports on the back of the target server. See *To connect a DSRIQ module to a server* and *To connect a DSRIQ module to a serial device* for more information.
5. Plug a CAT 5 patch cable from your Ethernet network into the LAN port on the back of your DSR1024 switch. Network users will access the DSR switch through this port.
6. (Optional) The DSR1024 switch may also be accessed using a ITU V.92, V.90 or V.34-compatible modem. Plug the included ribbon cable into the MODEM port on the back of your DSR1024 switch. Plug the other end into the RJ-45 to DB-9 adaptor and plug the adaptor into the connector on the modem.

NOTE: Using a modem connection instead of a LAN connection will limit the performance capability of your DSR1024 switch.

7. (Optional) Plug one end of the cable supplied with the SPC power control device into the SPC port on the DSR1024 switch and plug the other end into an SPC device. Plug the power cord from the target server into the SPC device power outlets. Plug the SPC device into an appropriate AC wall outlet.
8. If you will be configuring the DSR switch using the console menu interface, connect a terminal or PC running terminal emulation software (such as HyperTerminal®) to the SETUP port on the back panel of the DSR1024 switch using the suppliedcable. The terminal should be set to 9600 bits per second (bps), 8 bits, 1 stop bit, no parity and no flow control. Otherwise, proceed to the next step.
9. Power up the target device and then power up the DSR1024 switch. After approximately one minute, the switch completes initialization and displays the target video on the local port monitor.

10. Use the DSView software to configure the switch. See the DSView Installer/User Guide for detailed instructions.

To connect a DSRIQ module to a server:

1. Attach the appropriately color-coded connectors of a DSRIQ module to the keyboard, monitor and mouse ports on the server you will be connecting to this DSR1024 switch.
2. Attach one end of the CAT 5 patch cable to the RJ-45 connector on the DSRIQ module. Connect the other end of the CAT 5 patch cable to the desired port on the back of your DSR1024 switch.

NOTE: When connecting a Sun DSRIQ module, you must use a multi-sync monitor in the local port to accommodate Sun computers that support both VGA and sync-on-green or composite sync.

To connect a DSRIQ module to a serial device:

1. Attach the DSRIQ-SRL module 9-pin serial connector to the serial port of the device to be connected to your DSR1024 switch.
2. Attach one end of the CAT 5 patch cable to the RJ-45 connector on the DSRIQ-SRL module. Connect the other end of the CAT 5 patch cable to the desired port on the back of your DSR1024 switch.

NOTE: The DSRIQ-SRL module is a DCE device and only supports VT100 terminal emulation.

3. Connect the power supply to the power connector on your DSRIQ-SRL module. The cable expander can be used to power up to four DSRIQ-SRL modules from a single power supply.
4. Connect the DSRIQ-SRL module power supply to an appropriate AC wall outlet. Power up your serial device. See *Appendix C* for more information on DSRIQ-SRL modules.

Verifying the Connections

DSR switch

The front panel of the DSR1024 switch features two LEDs indicating the Ethernet connection. The top green LED is the *Link* indicator. It will illuminate when a valid connection to the network is established and blink when there is activity on the port. The lower amber LED, labeled *100M*, will indicate that you are communicating at the 100 Mbps rate when using an Ethernet connection.

Additionally, there are two LEDs on the front of your DSR1024 switch to indicate the target device status: one green and one amber. The green LED will illuminate when the attached target device has a digital session active. The amber LED will illuminate when that port is selected.

DSRIQ modules

PS/2, Sun and USB DSRIQ modules are available for attaching computers to your DSR switch.

The DSRIQ-SRL serial module is used to connect serial devices to your DSR switch and features two green LEDs: a *POWER* LED and a *STATUS* LED. The *POWER* LED indicates that the attached DSRIQ-SRL is powered. The *STATUS* LED indicates that a valid selection has been made to a DSR switch. The DSRIQ-SRL module prevents a serial break from the attached device if the module loses power. However, a user can generate a serial break with the attached device by pressing **Alt-B** after accessing the Terminal Applications menu.

Configuring DSView Software and Adjusting Mouse Settings

Setting up the DSView software

See the DSView Installer/User Guide that ships with your software.

Adjusting mouse settings on target devices

Before a computer connected to the DSR1024 switch may be used for remote user control, you must set the target mouse speed and turn off acceleration. For machines running Microsoft® Windows® (Windows NT®, 2000, XP, Server 2003), use the default PS/2 mouse driver.

NOTE: For the various versions of Windows, mouse motion and acceleration are set in different places within the Mouse Control Panel applet. If you don't find the motion or acceleration options as described in the following procedures, check the other tabs on the Mouse Control Panel applet.

To adjust mouse settings on Windows NT (using default drivers):

1. From the Desktop, select *Start* - *Settings* - *Control Panel* - *Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Motion* tab.
3. Set the Pointer speed to *Slow.* This will also need to be done for any NT user account that will be accessing the NT system through the DSR1024 switch.
4. Set Acceleration to *None* for mouse sync.

5. Click *OK*.
6. Click *Mouse Align* in the DSView software remote session window(s) to realign the mouse.

To adjust mouse settings on Windows 2000 (using default drivers):

1. From the Desktop, select *Start* - *Settings* - *Control Panel* - *Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Motion* tab.
3. Set Speed to the default of 50% (the sixth tick mark from the left).
4. Set Acceleration to *None* for mouse sync.
5. Click *OK*.
6. Click *Mouse Align* in the DSView software remote session window(s) to realign the mouse.

To adjust mouse settings on Windows XP or Server 2003 (using default drivers):

1. From the Desktop, select *Start* - *Control Panel* - *Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Pointer Options* tab.
3. Set Speed to the default of 50% (the sixth tick mark from the left).
4. Uncheck the *Enhance pointer precision* checkbox.
5. Click *OK*.
6. Click *Mouse Align* in the DSView software remote session window(s) to realign the mouse.

To adjust mouse settings using IntelliPoint® drivers:

1. From the Desktop, select *Start* - *Settings* - *Control Panel* - *Mouse*. The Mouse Properties dialog box will appear.
2. Click on the *Pointer Options* tab.
3. Set the speed setting to the default, which is the midpoint of the Pointer Speed slider (five tick marks on each side of the slider).
4. Click *Advanced*. The Advanced Pointer Speed dialog box will appear.
5. Uncheck the *Enhanced pointer precision* checkbox, then click *OK* to close the dialog box.
6. Click *OK* to close the Mouse Properties dialog box.
7. Click *Mouse Align* in the DSView software remote session window(s) to realign the mouse.

To adjust mouse settings using Red Hat® Linux® drivers:

1. From the Desktop Controls, select the mouse settings.
2. Set acceleration to the center position of the slider (the fourth tick mark from the left) and apply the changes.

NOTE: If you are using an older version of Red Hat Linux software with a numerical slider, set mouse acceleration to 1.0 and apply the changes.

3. Click *Mouse Align* in the DSView software remote session window(s) to realign the mouse.

To adjust mouse settings using Sun Solaris™ drivers:

1. From the Workspace Menu, select *Applications* and then select *Application Manager* from the Applications menu. The Application Manager will appear.
2. From the Application Manager, double-click *Desktop_Controls*. The Application Manager - Desktop_Controls will appear.
3. From the Application Manager - Desktop_Controls, double-click *Mouse Style Manager*. The Mouse Style Manager dialog box will appear.
4. Set Acceleration to 1.0 for mouse sync.
5. Click *OK*.
6. In the DSView software remote session window, select *Video - Scaling - Auto Scale*.
7. In the DSView software remote session window, select *Mouse - Scale*. The Mouse Scaling dialog box will appear.
8. In the Scaling Type area, select *Normal*, then click *OK*.
9. Click *Mouse Align* in the DSView software remote session window(s) to realign the mouse.

CHAPTER 3

Terminal Operations

The Console Menu

Each DSR1024 switch may be configured at the appliance level through the Console menu interface accessed through the SETUP port on the back of the switch. All terminal commands are accessed through a terminal or PC running terminal emulation software.

NOTE: This is NOT the recommended method for setting options for the DSR switch. The preferred method is to make all configuration settings in the DSView Server software. See the DSView Installer/User Guide for more information.

Network Configuration

To configure network settings using the Console menu:

1. When you power up your DSR switch, the switch initializes for approximately one minute. After it completes initialization, press any key on the terminal or on the PC running the

terminal emulation software to access the Console menu interface. Actually, the terminal may be connected at any time, even when the switch is already powered.

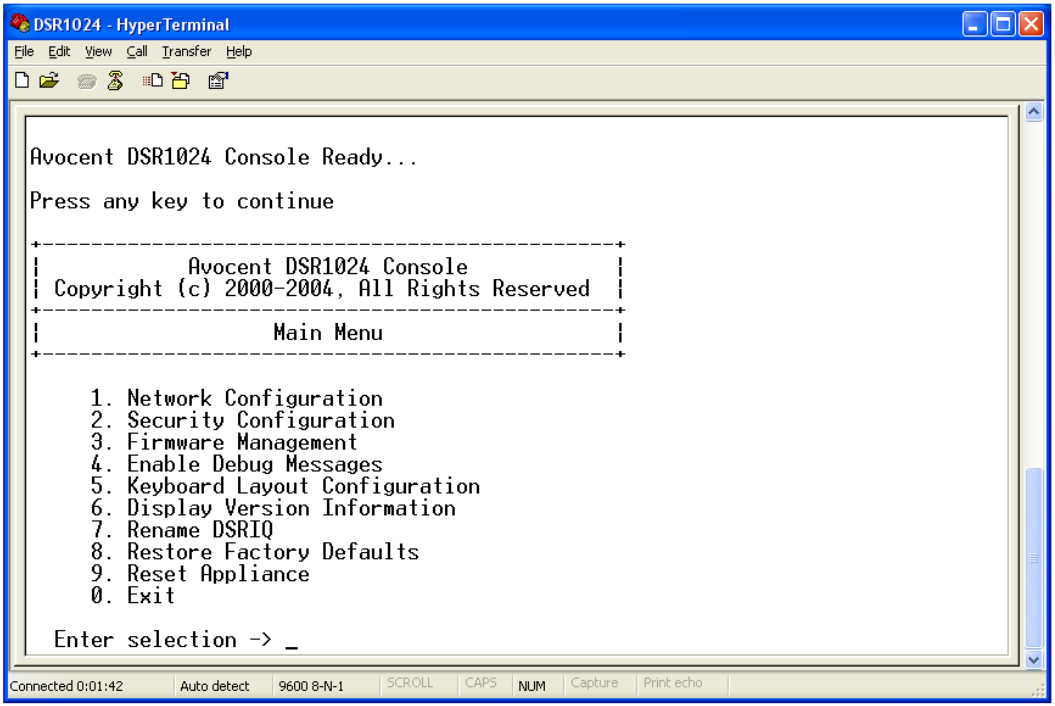

Figure 3.1: Console Main Menu

2. The Console Main menu displays. Type **1** and press **Enter** for the Network Configuration option. The Network Configuration menu displays.

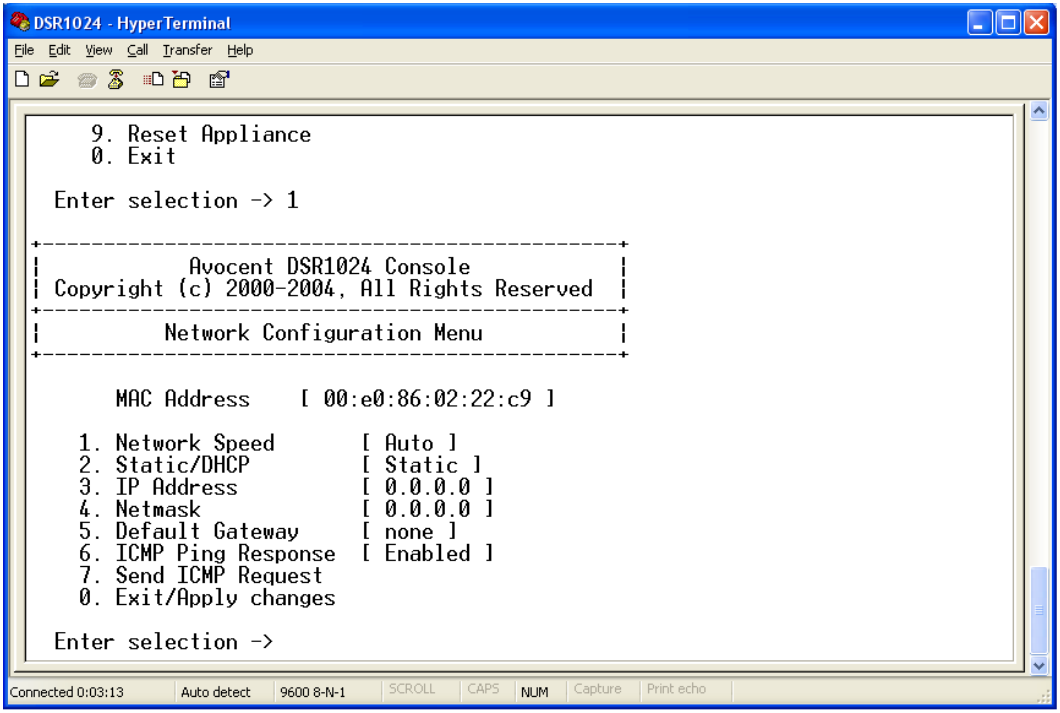

Figure 3.2: Network Configuration Menu

3. Type **1** and press **Enter** to set your network speed. When possible, you should set your connection manually without relying on the auto negotiate feature. After you press **Enter**, you will be returned to the Network Configuration menu.
4. Type **2** and press **Enter** to specify whether you are using a static or Dynamic Host Configuration Protocol (DHCP) address. A static IP address may be used to provide a user-defined IP address, netmask and default gateway for the DSR1024 switch. Avocent recommends using a static IP address for ease of configuration. DHCP is a protocol that automates the configuration of TCP/IP-enabled computers. When DHCP is selected, the IP Address, Netmask and Default Gateway settings are automatically assigned to the DSR1024 switch and may not be modified by a DS user. If you are using the DHCP option, please configure your DHCP server to provide an IP address to the DSR1024 switch and then skip step 5.
5. Select the remaining options from the Network Configuration menu, in turn, to finish configuring your DSR1024 switch for IP address, netmask, default gateway and ping response.
6. Type **0** (zero) and press **Enter** to return to the Console Main menu.

Other Console Main Menu Options

Besides the Network Configuration option, the Console Main menu of the DSR1024 switch features the following menu items: Security Configuration, Firmware Management, Enable Debug Messages, Keyboard Layout Configuration, Display Version Information, Rename DSRIQ, Restore Factory Defaults, Reset Appliance and Exit. Each is discussed below.

Security Configuration

The DSR switch contains an internal database that may be used by the DSR Remote Operations software or the SETUP port if the DSView Server software is unavailable. The DSR1024 switch contains an internal database that may be used by the DSR Remote Operations software or the SETUP port if the DSView Server is unavailable.

The Security Configuration menu contains the following options:

- Local User Accounts: Add, edit or delete users to/from the DSR1024 switch database.
- Console Password: Enable or disable using security for the console (access requires an Admin account).
- Reset Certificates: Reset the certificate used by the DSView software system.
- Secure Mode: Enable or disable the DSView software Secure mode.

Local User Accounts

NOTE: When you use the options to add, edit or delete a user, a list of existing users will appear. You may enter **N** to display the next page of users in the database or enter **P** to go back to the previous page of users.

To add a user to the DSR1024 switch database:

1. Type **2** and press **Enter** to access the Security Configuration menu option.
2. Type **1** and press **Enter** to access the Local User Accounts menu option. A list of users already within the database will appear.
3. Type **A**.
4. You will be prompted to enter the username to add. Type a username and press **Enter**.
5. You will be prompted to type a password for the user. Type a password and press **Enter**.
6. You will be prompted to re-type the password. Type the password again and press **Enter**.
7. Enter **0** (zero) to exit.

To rename a user in the DSR1024 switch database:

1. From the Console Main menu, type **2** and press **Enter** to access the Security Configuration menu option.
2. Type **1** and press **Enter** to access the Local User Accounts menu option. A list of users already within the database will appear.
3. Type **E**.

4. You will be prompted to enter the number of the user you wish to rename. Type the user's number then press **Enter**.
5. Type a new username and press **Enter**.
6. Enter the password for the user, then re-enter the password to confirm it.
7. Enter **0** (zero) to exit.

To remove a user from the DSR1024 switch database:

1. From the Console Main menu, type **2** and press **Enter** to access the Security Configuration menu option.
2. Type **1** and press **Enter** to access the Local User Accounts menu option. A list of users already within the database will appear.
3. Type **D**.
4. You will be prompted to enter the number of the user you wish to delete. Type the user's number then press **Enter**.
5. You will be prompted to confirm deletion of the user from the DSR1024 switch database. Type **Y** and press **Enter** to remove the user.
6. Enter **0** (zero) to exit.

Console Password

If this is enabled, access to the switch's Console Main menu will require the user to log in.

Reset Certificates

This menu option enables you to clear the certificate sent by the DSView software to the DSR switch.

When a DSR1024 switch is added to a server running DSView software, a certificate is downloaded from that server to the DSR switch automatically. That certificate is replicated across all servers running DSView software operating in a predefined system. Thereafter, any of the servers in that system will be able to communicate with the DSR switch.

If the server running DSView software cannot contact the DSR1024 switch to add the certificate, an error message is displayed and the DSR1024 switch is not added to the database.

Secure Mode

The DSR switch operates in one of two modes: Security disabled or Security enabled.

In Security disabled mode, the DSR1024 switch allows any server running DSView software to communicate with it.

In Security enabled mode, an initial server running DSView software is allowed to download a certificate to the switch. If that server is part of a system that replicates certificates, it will pass the certificate to the other servers in that certificate replication system. Thereafter, all servers in that system will be allowed to access the DSR switch. All servers that are not part of that system will be locked out.

When the DSR1024 switch is removed from the DSView software database, the certificate is removed from the DSR1024 switch. This enables you to move the DSR switch from one certificate replication system to another. The certificate can also be removed using the Console menu accessed via the SETUP port on the DSR1024 switch. See the *Reset Certificates* section.

See the DSView Installer/User Guide for more information on software security.

Firmware Management

This menu contains the FLASH Download selection. For more information, see *Appendix A.*

Enable Debug Messages

This menu option turns on console status messages. Because this can significantly reduce performance, you should only enable debug messages when instructed to do so by Avocent Technical Support. When you are finished viewing the messages, press any key to exit this mode.

Keyboard Layout Configuration

NOTE: Using a keyboard code that supports a language different from that of your DSR switch firmware will cause incorrect keyboard mapping.

Sun servers may use keyboard mappings for non-US keyboards. By default, the DSR1024 switch sends the US keyboard country code to Sun and USB modules attached to target devices and the code is applied to the target devices when they are powered up or rebooted. Codes are then stored in the DSRIQ module.

Issues may arise when you use the US keyboard country code with a keyboard of another country. For example, the **Z** key on a US keyboard is in the same location as the **Y** key on a German keyboard. Sun servers will interpret pressing the **Y** key on a German keyboard as pressing the **Z** key when the US keyboard country code is used.

The Keyboard command enables you to send a different keyboard country code than the default US setting. The specified country code is sent to the target device attached to the DSR1024 switch when it is powered up or rebooted and the new code is stored in the DSRIQ module.

See *Appendix F* for information on emulating certain Sun keys using a PS/2 keyboard and special considerations for Japanese and Korean Sun USB keyboards.

NOTE: You can only view or change keyboard country code settings via the Console menu on the SETUP port.

To set the keyboard country code for Sun servers:

1. Type **5** and press **Enter** to select the Keyboard Layout Configuration menu option. A list of countries will appear.
2. Select the country from the list by number, or press **0** (zero) to save your changes, if any, and exit.
3. Reboot the Sun server. After rebooting, the Sun server will request the country code setting stored in the DSRIQ module.

NOTE: If you wish to reboot the target device by power-cycling it, you must wait 90 seconds before rebooting. A soft reboot may be performed without waiting 90 seconds.

Display Version Information

When you select this menu item from the Main menu, all important version information for the switch hardware and firmware displays. You can also select to view the DSRIQ module version information.

Rename DSRIQ

Select this menu item from the Main menu to change the name of the attached DSRIQ module.

To change the name of the DSRIQ module:

1. Type **7** and press **Enter** to select the Rename DSRIQ module menu option. The current DSRIQ EID and Name display.

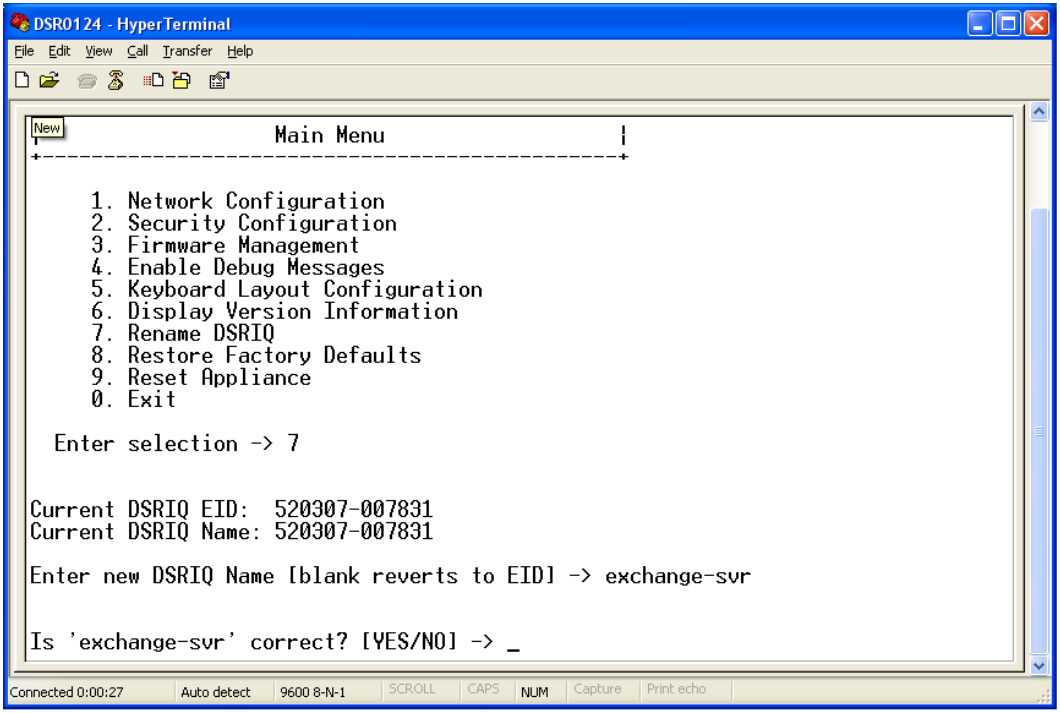

Figure 3.3: The Rename DSRIQ Module Screen

2. Enter a meaningful name, or simply press **Enter** to revert to the using the EID as the DSRIQ name. Names may be up to 15 characters long. Legal characters include: A-Z, a-z, 0-9, space and hyphen.
3. You will be prompted to accept the new name. If it is correct, type **y**, then press **Enter**.

Restore Factory Defaults

This menu option will restore all switch options to the default settings.

Reset Appliance

This menu option allows you to execute a soft reset of the DSR1024 switch.

Exit

This menu selection will return you to the ready prompt. If the Console menu interface password is enabled, you must exit the Console Main menu so that the next user will be prompted with the Username and Password login screen.

APPENDICES

Appendix A: FLASH Upgrades

The DSR1024 switch FLASH upgrade feature allows you to update your appliance with the latest firmware available. This update can be performed using the DSView software or using a Trivial File Transfer Protocol (TFTP) server.

After the FLASH memory is reprogrammed with the upgrade, the DSR switch performs a soft reset, which terminates all DSRIQ module sessions. A target device experiencing a DSRIQ module firmware update may not display, or may display as disconnected. The target device will appear normally when the FLASH update is completed.

CAUTION: Disconnecting a DSRIQ module during a firmware update or cycling power to the target device will render the module inoperable and require the DSRIQ module to be returned to the factory for repair.

To upgrade the DSR switch firmware using the DSView software:

The preferred method for updating the firmware is to use the DSView software. See the DSView Installer/User Guide for detailed instructions.

To upgrade the DSR switch firmware using the Console menu interface:

NOTE: If you do not have a TFTP server, you can find several shareware and freeware programs on the Internet that you can download and install.

1. Visit http://www.avocent.com/support and download the latest FLASH firmware from Avocent. Save the FLASH upgrade file to the appropriate directory on the TFTP server.
2. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the SETUP port on the back panel of the DSR1024 switch using the supplied ribbon cable and adaptor. The terminal should be set to 9600 bps, 8 bits, 1 stop bit, no parity and no flow control.
3. If the DSR1024 switch is not on, turn it on now. After approximately one minute, press any key to access the Console Main menu.
4. The Console Main menu displays. Select the *Firmware Management* option.

NOTE: The current version of your firmware will be displayed on the Firmware Management menu.

5. Type **1** and press **Enter** to access FLASH Download.
6. Type the IP address of your TFTP server and press **Enter**.
7. Enter the name of the file that you downloaded from the Avocent web site.
8. Confirm the TFTP download by typing a **y** or **yes** and pressing **Enter**.
9. The DSR1024 switch will verify that the file you downloaded is valid. Next, you will be prompted to confirm the upgrade. Type a **y** or **yes** and press **Enter** to confirm.

10. The DSR1024 switch will begin the FLASH upgrade process. On-screen indicators will display the upgrade progress. When the upload is complete, the DSR1024 switch will reset and upgrade the internal subsystems.
11. Once the upgrade is complete, a verification message will appear on-screen.

Appendix B: Using DSView Software Over a Modem Connection

An external modem may be attached to the DSR1024 switch. This modem may be used to access the switch when an Ethernet connection is not available.

A modem/PPP dial-up connection must be established before the remote operation is enabled. The dial-up connection options should be set to 115,200 bps, 8 bits, 1 stop bit, no parity and enabled hardware flow control.

Before you begin

The following actions should be performed before using the DSR Remote Operations software:

- Ensure that the DSR1024 switch is configured. See Chapter 2 for more information.
- Ensure that DSR switch users have been added to the DSR1024 switch internal database. If the DSView Server software is not available, the switch database is used for authentication. If neither are available, authentication cannot be performed for the DSR1024 switch. See Chapter 3 for more information.
- Ensure that an external modem is attached to the DSR1024 switch MODEM port. The modem should have auto-answer turned off (typically a modem's default setting).
- Ensure that your client PC contains dial-up software and that the software is configured properly. See your operating system documentation for more information.

Establishing a DSR Remote Operations software connection

This is explained in detail in the DSView Installer/User Guide.

Appendix C: Using DSRIQ-SRL Modules

The DSRIQ-SRL module is a serial-to-VGA converter which permits VT100-capable devices to be viewed from the DSR switch local port or by using the DSView software. The actual serial data is not accessed, but is merely displayed. All serial data coming from the target device is displayed in a VT100 window, placed into a video buffer and sent to the DSR switch as though it came from a VGA target. Likewise, keystrokes entered on a keyboard are sent to the attached device as though they were typed upon a VT100 terminal.

DSRIQ-SRL module modes

The following modes can be accessed from the DSRIQ-SRL module:

- On-Line: This mode enables you to send and receive serial data.
- Configuration: This mode enables you to specify DSR switch communication parameters, the appearance of the Terminal Applications menu and key combinations for specific actions and macros.
- History: This mode enables you to review serial data.

Configuring the DSRIQ-SRL module

NOTE: The DSRIQ-SRL module is a DCE device and only supports VT100 terminal emulation.

Pressing **Ctrl-F8** will activate the Configuration screen of the DSRIQ module's Terminal Applications menu, which enables you to configure your DSRIQ-SRL module.

NOTE: When any Terminal Applications menu is active, pressing **Enter** saves changes and returns you to the previous screen. Pressing **Escape** returns you to the previous screen without saving changes.

Within the Terminal Applications menu's Configuration screen, you can modify the following options:

- Baud Rate: This option allows you to specify the serial port communications speed. Available options are 300, 1200, 2400, 9600, 19,200, 34,800, 57,600 or 115,200 bps. The default value is 9600.
- Parity: This option allows you to specify the serial port's communications parity. Available options are EVEN, ODD or NONE. The default value is NONE.
- Flow Control: This option allows you to specify the type of serial flow control. Available options are NONE, XOn/XOff (software) and RTS/CTS (hardware). The default value is NONE. If you select a bps rate of 115,200, the only available flow control is RTS/CTS (hardware).
- DSR/CD Mode: This option allows you to control how the DSR switch and CD lines operate. Available options are Always on and Toggle. When in Toggle mode, DSR and CD lines are turned off for one-half second and then turned on each time a module is selected or deselected. The default value is Always on.

- Enter Sends: This option enables you to specify the keys that are transmitted when **Enter** is pressed. Available options are <CR> (Enter), which moves the cursor to the left side of the screen, or <CR><LF> (Enter-Linefeed), which moves the cursor to the left side of the screen and down one line.
- Received: This option enables you to specify how the module translates a received **Enter** character. Available options are <CR> (Enter) or <CR><LF> (Enter-Linefeed).
- Background: This option changes the screen's background color. The currently-selected color displays in the option line as it is changed. Available colors are Black, Light Grey, Yellow, Green, Teal, Cyan, Blue, Dark Blue, Purple, Pink, Orange, Red, Maroon and Brown. The default color is Black. This value cannot be identical to the Normal Text or Bold Text value.
- Normal Text: This option changes the screen's normal text color. The currently-selected color displays in the option line as it is changed. Available colors are Grey, Light Grey, Yellow, Green, Teal, Cyan, Blue, Dark Blue, Purple, Pink, Orange, Red, Maroon and Brown. The default color is Grey. This value cannot be identical to the Bold Text or Background value.
- Bold Text: This option changes the screen's bold text color. The currently-selected color displays in the option line as it is changed. Available colors are White, Yellow, Green, Teal, Cyan, Blue, Dark Blue, Purple, Pink, Orange, Red, Maroon, Brown and Light Grey. The default color is White. This value cannot be identical to the Normal Text or Background value.
- Screen Size: This option allows you to specify the screen's text width size. Available values are widths of 80 columns or 132 columns. The length for both widths is 26 lines.

The following Terminal Application menu's Configuration screen options enable you to define the function keys that will perform a selected action. To specify a new function key, press and hold the **Ctrl** key, then press the function key that you want to associate with the action. For example, if you want to change the Configuration (Config) Key Sequences option from <CTRL-F8> to <CTRL-F7>, press and hold the **Ctrl** key and then press **F7**.

- Config Key Sequences: This option allows you to define the key combination that causes the Terminal Application menu's Configuration screen to appear. The default key sequence is **Ctrl-F8**.
- On-Line Key Sequence: This option allows you to define the key sequence that displays the On-Line mode. The default key sequence is **Ctrl-F10**.
- Help Key Sequence: This option allows you to define the key combination that displays the Help System screen. The default key sequence is **Ctrl-F1**.
- History Key Sequence: This option allows you to define the key combination that enables History mode. The default key sequence is **Ctrl-F9**.
- Clear History Key Sequence: This option allows you to define the key combination that clears the history buffer while in History mode. The default key sequence is **Ctrl-F11**.
- Break Key Sequence: This option allows you to configure the key combination that generates a break condition. The default key sequence is **Alt-B**.

To configure a DSRIQ-SRL module:

1. Press **Ctrl-F8**. The Configuration Screen will appear.
2. Select a parameter to change. You can navigate the Configuration Screen using the **Up Arrow** and **Down Arrow** keys.
3. Modify the selected value using the **Left Arrow** and **Right Arrow** keys.
4. Repeat steps 2 and 3 to modify additional values.
5. Press **Enter** to save your changes and exit the Configuration Screen.
   -or-
   Press **Escape** to exit the Configuration Screen without saving the changes.

Creating a DSRIQ-SRL module macro

Pressing the **Page Down** key when the Terminal Applications menu's Configuration screen is displayed will provide access to the Macro Configuration screen. The DSRIQ-SRL module can be configured with up to 10 macros. Each macro can be up to 128 characters in length.

To create a macro:

1. Select the DSRIQ-SRL module you wish to configure and press **Ctrl-F8** to activate the Terminal Applications menu's Configuration screen.
2. When the Terminal Applications menu appears, press **Page Down** to view the Macro Configuration screen. The Macro Configuration screen shows the 10 available macros and the associated key sequences, if any, for each.
3. Using the **Up Arrow** and **Down Arrow** keys, scroll to an available macro number and highlight the listed keystroke sequence. Type the new macro keystroke sequence over the default. Any combination of **Ctrl** or **Alt** and a single key may be used. When you have finished entering the keystroke sequence that will activate the new macro, press the **Down Arrow** key.
4. On the line below the macro keystroke sequence you just entered, type the keystroke sequence that you wish the macro to perform.
5. Repeat steps 3 and 4 to configure additional macros.
6. When finished, press **Enter** to return to the previous screen.

Using History mode

History mode allows you to examine the contents of the history buffer, which contains the events that have occurred.

The DSRIQ-SRL module maintains a buffer containing 240 lines minimum, or 10 screens, of output. When the history buffer is full, it will add new lines at the bottom of the buffer and delete the oldest lines at the top of the buffer.

NOTE: The Config Key Sequence, On-Line Key Sequence and Clear History Key Sequence used in the following procedure are the default values. These key combinations can be changed using the Terminal Applications menu.

To use History mode:

1. Press **Ctrl-F9**. The mode will display as History.
2. Press one of the following key combinations to perform the indicated action:
   - **Home**: Move to the top of the buffer.
   - **End**: Move to the bottom of the buffer.
   - **Page Up**: Move up one buffer page.
   - **Page Down**: Move down one buffer page.
   - **Up Arrow**: Move up one buffer line.
   - **Down Arrow**: Move down one buffer line.
   - **Ctrl-F8**: Enters Configuration mode. The Configuration screen will appear.
   - **Ctrl-F9**: While in Configuration mode, return to the previous screen with History mode enabled.
   - **Ctrl-F10**: While in Configuration mode, return to the previous screen with On-Line mode enabled.
   - **Ctrl-F11**: Clears the history buffer. If you choose this option, a warning screen will appear. Press **Enter** to delete the history buffer, or **Escape** to cancel the action. The previous screen will reappear.
3. When finished, press **Ctrl-F10** to exit History mode and return to On-Line mode.

DSRIQ-SRL module pinouts

Table C.1: DSRIQ-SRL Module Pinouts

DB9-F Pin	Host Signal Name/Description	Signal Flow	SRL Signal Name/Description
1	DCD - Data Carrier Detect	Out of SRL	DTR - Data Terminal Ready
2	RXD - Receive Data	Out of SRL	TXD - Transmit Data
3	TXD - Transmit Data	In to SRL	RXD - Receive Data
4	DTR - Data Terminal Ready	In to SRL	DSR - Data Set Ready
5	GND - Signal Ground	N/A	GND - Signal Ground
6	DSR - Data Set Ready	Out of SRL	DTR - Data Terminal Ready
7	RTS - Request to Send	In to SRL	CTS - Clear to Send
8	CTS - Clear to Send	Out of SRL	RTS - Request to Send
9	N/C - Not Connected	N/A	N/C - Not Connected

Appendix D: UTP Cabling

The following information is intended to brief you on various aspects of connection media. The performance of a DSR switching system depends on high quality connections. Poor quality or poorly installed or maintained cabling can diminish DSR system performance.

NOTE: This appendix is for information purposes only. Please consult with your local code officials and/or cabling consultants prior to any installation.

DSR switching systems utilize UTP cabling.

UTP copper cabling

The following are basic definitions for the three types of UTP cabling that the DSR switch supports:

- CAT 5 UTP (4-pair) high performance cable consists of twisted pair conductors, used primarily for data transmission. The twisting of the pairs gives this cable some immunity from the infiltration of unwanted interference. CAT 5 cable is generally used for networks running at 10 or 100 Mbps.
- CAT 5E (enhanced) cable has the same characteristics as CAT 5, but is manufactured to somewhat more stringent standards.
- CAT 6 cable is manufactured to tighter requirements than CAT 5E cable. CAT 6 has higher measured frequency ranges and significantly better performance requirements than CAT 5E cable at the same frequencies.

Wiring standards

There are two supported wiring standards for 8-conductor (4-pair) RJ-45 terminated UTP cable: EIA/TIA 568A and B. These standards apply to installations utilizing CAT 5, 5E and 6 cable specifications. The DSR switching system supports either of these wiring standards. Please refer to the following table for details.

Table D.1: UTP Wiring Standards

Pin	EIA/TIA 568A	EIA/TIA 568B
1	white/green	white/orange
2	green	orange
3	white/orange	white/green
4	blue	blue
5	white/blue	white/blue
6	orange	green

Table D.1: UTP Wiring Standards (Continued)

Pin	EIA/TIA 568A	EIA/TIA 568B
7	white/brown	white/brown
8	brown	brown

Cabling installation, maintenance and safety tips

The following is a list of important safety considerations that should be reviewed prior to installing or maintaining your cables:

- Keep all CAT 5 runs to a maximum of 10 meters each.
- Maintain the twists of the pairs all the way to the point of termination, or no more that one-half inch untwisted. Do not skin off more than one inch of jacket while terminating.
- If bending the cable is necessary, make it gradual with no bend sharper than a one inch radius. Allowing the cable to be sharply bent or kinked can permanently damage the cable's interior.
- Dress the cables neatly with cable ties, using low to moderate pressure. Do not over tighten ties.
- Cross-connect cables where necessary, using rated punch blocks, patch panels and components. Do not splice or bridge cable at any point.
- Keep CAT 5 cable as far away as possible from potential sources of EMI, such as electrical cables, transformers and light fixtures. Do not tie cables to electrical conduits or lay cables on electrical fixtures.
- Always test every installed segment with a cable tester. "Toning" alone is not an acceptable test.
- Always install jacks so as to prevent dust and other contaminants from settling on the contacts. The contacts of the jack should face up on the flush mounted plates, or left/right/down on surface mount boxes.
- Always leave extra slack on the cables, neatly coiled in the ceiling or nearest concealed location. Leave at least five feet at the work outlet side and 10 feet at the patch panel side.
- Choose either 568A or 568B wiring standard before beginning. Wire all jacks and patch panels for the same wiring scheme. Don't mix 568A and 568B wiring in the same installation.
- Always obey all local and national fire and building codes. Be sure to firestop all cables that penetrate a firewall. Use plenum rated cable where it is required.

Appendix E: Technical Specifications

Table E.1: DSR1024 Switch Product Specifications

Server Ports	
Number	1 (DSR1024 switch)
Types	DSRIQ-PS/2, DSRIQ-USB, DSRIQ-VSN (Sun VGA), DSRIQ-WSN (Sun 13W3) and DSRIQ-SRL modules
Connectors	RJ-45
Sync Types	Separate horizontal and vertical
Plug and Play	DDC2B
Video Resolution	640 x 480 @ 60 Hz (Local Port and Remote Port Minimum) 800 x 600 @ 75 Hz 960 x 700 @ 75 Hz 1024 x 768 @ 75 Hz 1280 x 1024 @ 75 Hz (Remote Port Maximum using a DSRIQ module)
Supported Cabling	4-pair UTP CAT 5 or CAT 6, 10 meters maximum length
SETUP Port	
Number	1
Type	Serial RS-232 Cable
Connector	RJ-4 with RJ-45 to DB-9 (female) adaptor
Network Connection	
Number	1
Type	Ethernet: IEEE 802.3 2002 Edition - 10BaseT, 100BaseT
Connector	RJ-45
Local Port	
Number	1
Type	PS/2 and VGA
Connectors	PS/2 MiniDIN and 15-pin D-Sub
MODEM Port	
Number	1
Type	RJ-4 with RJ-45 to DB-9 (male) adaptor
Connectors	RJ-45

Table E.1: DSR1024 Switch Product Specifications (Continued)

SPC Device Port	
Number	1
Type	RJ-45
Dimensions	
Height x Width x Depth	1.10 x 8.08 x 6.30 in (2.80 x 20.51 x 16.00 cm)
Weight	1.1 lbs (0.50 kg) without cables
Heat Dissipation	17.7 BTU/hr
Power Supply	
AC-input Power	20 W maximum
AC-input Range	100 - 240 VAC
AC-input Current Rating	600 mA RMS Max
AC-input Cable	18 AWG three-wire cable, with a three-lead IEC-320 receptacle on the external transformer and a country-dependent plug on the power resource end
AC Frequency	50 - 60 Hz autosensing
Ambient Atmospheric Condition Ratings	
Temperature	32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius) operating; -22 to 158 degrees Fahrenheit (-30 to 70 degrees Celsius) nonoperating
Humidity	10 - 95% noncondensing
Safety and EMC Standards	UL, FCC, cUL, ICES-003, CE, GS, VCCI, MIC, C-Tick, GOST

Appendix F: Sun Advanced Key Emulation

Certain keys on a standard Type 5 (US) Sun keyboard can be emulated by key press sequences on a PS/2 keyboard. To enable Sun Advanced Key Emulation mode and use these keys, press and hold **Ctrl+Shift+Alt** and then press the **Scroll Lock** key. The *Scroll Lock* LED blinks. Use the indicated keys in the following table as you would use the advanced keys on a Sun keyboard.

Table F.1: Sun Key Emulation

Sun Key (US)	PS/2 Key to Enable Sun Key Emulation
Compose	Application(1)
Compose	keypad
Power	F11
Open	F7
Help	Num Lock
Props	F3
Front	F5
Stop	F1
Again	F2
Undo	F4
Cut	F10
Copy	F6
Paste	F8
Find	F9
Mute	keypad /
Vol.+	keypad +
Vol.-	keypad -
Command (left)(2)	F12
Command (left)(2)	Win (GUI) left(1)
Command (right)(2)	Win (GUI) right(1)

(1) Windows 95 104-key keyboard.
(2) The Command key is the Sun Meta (diamond) key.

For example: For **Stop + A**, press and hold **Ctrl+Shift+Alt** and press **Scroll Lock**, then **F1 + A**.

These key combinations will work with the DSRIQ-USB module (if your Sun system comes with a USB port) as well as the Sun DSRIQ-VSN and DSRIQ-WSN modules. With the exception of **F12**, these key combinations are not recognized by Microsoft Windows. Using **F12** performs a Windows key press.

When finished, press and hold **Ctrl+Shift+Alt** and then press the **Scroll Lock** key to toggle Sun Advanced Key Emulation mode off.

Special considerations for Japanese Sun USB and Korean Sun USB keyboards (DSRIQ-USB modules only)

Japanese Sun USB and Korean Sun USB keyboards assign usage IDs for certain keys that differ from standard USB usage IDs. If DSRIQ-USB modules are attached to your Sun servers, the Han/Zen and Katakana/Hiragana keys on Japanese Sun USB keyboards and Hangul and Hanja keys on Korean Sun USB keyboards must be accessed using alternate keystrokes.

Due to these keyboard-specific differences, keyboard mapping inconsistencies may be encountered when switching between target devices using Sun DSRIQ-VSN and DSRIQ-WSN modules and target devices using DSRIQ-USB modules. These keys function normally if your Sun servers are attached to the DSR switch using a DSRIQ-VSN or DSRIQ-WSN module.

The following table lists the keyboard mapping that will take place when a DSRIQ-USB module is used in this setting.

Table F.2: PS/2-to-USB Keyboard Mappings

PS/2 Keyboard	USB Usage ID	Sun USB Keyboard	Korean Sun USB Keyboard	Japanese Sun USB Keyboard
Right-Alt	0xE6	AltGraph	Hangul	Katakana/Hiragana
Windows Application	0x65	Compose	Hanja	Compose
Hangul	0x90	N/A	N/A	N/A
Hanja	0x91	N/A	N/A	N/A
Katakana/Hiragana	0x88	N/A	N/A	Han/Zen
Han/Zen	0x35	` ~	` ~	N/A

Appendix G: Technical Support

Our Technical Support staff is ready to assist you with any installation or operating issues you encounter with your Avocent product. If an issue should develop, follow the steps below for the fastest possible service:

1. Check the pertinent section of the manual to see if the issue can be resolved by following the procedures outlined.
2. Check our web site at www.avocent.com/support to search the knowledge base or use the on-line service request.
3. Call Avocent Technical Support for assistance at (888) 793-8763. Visit the Avocent web site at http://www.avocent.com/support and click on *Support Phone Numbers* for current phone support hours.

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